

Mint of the United States

AT PHILADELPHIA.

Copy

November 26th 1877

Hon. James Pollock
Superintendent
Sir,

For sometime past I have felt that improvements could be made in the Machinery used in this Department, for the manufacture of coin, and in the present mode of treating the metal in its manipulation.

My attention was first called to the Rolling of Ingots. Greater accuracy I was led to believe could be obtained, by having the rolls ground by a new and more perfect grinding machine, than that in use here. This led to a visit to the establishment of Messrs. J. Morton Poole & Co. at Wilmington, Delaware, where the subject of grinding rolls, and rolling metals, was pretty thoroughly discussed by the firm, and Messrs. Webb and Garrett, Practical

men in this Department who accompanied me, and myself. This visit occasioned the firm mentioned to look into our mode of manipulating Ingots, and they seemed impressed with the idea that we could arrange our rolls to produce strips, as surely accurate by gauge, as the Draw-Bench does.

About this time I accidentally saw a copy of the Report of the Deputy Master of the Royal Mint, London, for 1874, and noticed that the Superintendent of the Operative Department, the R. A. Hill, stated his experiments to do away with the Draw-Bench, and to dispense with the annealing of strips, had proven so far successful, that for the greater part of that year he had not used the one, nor annealed the strips.

On the 4th of April I wrote him, asking an explanation of his mode of manipulating the strips from the rolls, without annealing, and also what process he employed to avoid whitening or

blanching the blanks. To this I received a lengthy reply dated June 1st giving a full explanation of his manner of working, illustrated with diagrams. I set about experimenting on this information, and found that we can reduce our Ingots to the required thickness, without annealing the strips, then by placing the planchets in either Copper canisters or iron pans, (the latter preferred,) rendered perfectly air tight with clay, we can anneal them without discoloration. I have now Coin (quarter Dollars) in my possession treated in this manner, that are in every respect as good coin as any made in the usual way. The result of all these experiments however, only convinced me that the main improvements to make would be, the perfection of our rolls to such a degree as to do away with the Draw-Bench.

I may say just here that in this effort at improvement the practical men of the Department were freely consulted. Messrs James, Garrett, Downing

and Webb have been aiding at all times in this matter, particularly has Mr. James devoted much thought and attention to this subject. Following up the conclusion reached. i.e. that the rolls must be perfected before the Draw-Bench could be dispensed with, Mr. James became satisfied that the principle of the small cylindrical Draw-Bench dies could be applied to a set of rolls. For some months past we have been allowing the cylindrical dies in the Draw-Bench to revolve, instead of remaining stationary, as had been the practice, so far as I know, since the introduction of the Machine. By doing this we have been enabled to use a pair of these dies 12 weeks, whereas when they remained stationary a single day would use them up. Now then, in furtherance of applying this principle to a set of rolls, Mr. James made some drawings of a machine, that could be accurately adjusted and so arranged as to produce, it is confidently believed, a strip of Silver positively the same thickness from one

end of it to the other.

By carefully examining Messrs J. Morton Pool & Co.'s system of grinding rolls, Mr. James felt assured that two cylinders, or rolls, could be made of such a uniform diameter and parallelism, as to present to each other perfectly straight lines of an equal distance apart at all points. Then he felt if he could perfect a machine that would enable these rolls to be kept at an even temperature throughout, he would obtain the object sought. These matters were constantly discussed between Mr. James and myself, and resulted in his preparing, as stated, a series of drawings, which, with my consent, he submitted to Messrs. J. Morton Pool & Co. for their advice and suggestion. These gentlemen were favorably struck with the plan, and Mr. James' idea of keeping the rolls at an even temperature was pronounced feasible. They desired time to look into the whole plan. This resulted in the preparation by them of the accompanying drawings description, specifications and estimate of cost.

I have the honor, also, to transmit herewith a ground plan of the Rolling Room showing the position and space occupied by the several machines therein. The space that the proposed machine would occupy is also shown by the red lines between Rolls No. 2 and 3. Upon consulting this plan you will find that by doing away with the pointing rolls, wax box and Draw Benches there would be an area of 125 square feet gained.

The introduction of an improvement such as is contemplated would I feel convinced, do away with the annealing of strips. The Ingots from the breakdown rolls passing on through to the proposed new machine, or finishing rolls, without toughening. The pointing, waxing and greasing of strips would be dispensed with - a saving per annum of \$75 for wax and \$500. for Tallow.

I believe the Machine presented should be ordered. The Cost is very reasonable - as great care must be taken to have it accurate in

construction. Its adjustment is so delicate that the space between the rolls can be made less than the ten one-thousandth part of an inch. It is confidently believed that one of these new-machines will do the work of our two Draw-Benches. If this belief is realized you can readily see the very great saving in expense by referring to the cost of the last Double-Bench, the bill for which was paid June 28th 1873.

Messrs J. Morton Poole & Co. do not say positively that the contemplated machine will do all the work claimed for it. They believe, with the practical men of this Department, judging from their general knowledge of Machinery, that it will produce more satisfactory results than the Draw-Bench. I deem the matter of sufficient importance to warmly recommend that authority be granted to them to build a machine for this department.

I may add in conclusion that I believe it

is practicable to dispense with the pickling of planchets, the source of the greatest loss in this Department. Treating the strips as stated, will leave the planchets with a fine polished surface - these placed in closed boxes and annealed, will prevent discoloration. The coin thus produced will present a nicely polished $9/10^{\circ}$ fine silver surface, instead of the present fine silver surface - will be in color what it is in fineness, and not as now, presenting a pure silver appearance, when in reality $1/10^{\circ}$ of it is base.

I have in my possession, as before stated a lot of Quarter Dollars treated in this way, that were submitted to you, and also examined by the other Officials of this Mint - all agreeing that in appearance they are equally as elegant as our usual coinage, except in the matter of color - and this was believed to be an improvement over the dead white pure silver surface of our Coin. The tint is the same as the present silver

Coinage of the Royal Mint at London, and
indeed I am indebted to the Hon. Mr. Hill of that
Mint for the mode of treatment

Very Respectfully
Your Obedt. Servant

Signed

O. C. Postyskell
Corner

Coiner's Department.

Copy

Mint of the United States
At Philadelphia.
November 26, 1877

Hon. James Pollock
Superintendent

Sir,

For sometime past I have felt that improvements could be made in the machinery used in this Department, for the manufacture of coin, and in the present mode of treating the metal in its manipulation.

My attention was first called to the Rolling of Ingots. Greater accuracy I was lead to believe could be obtained, by having the rolls ground by a new and more perfect grinding machine, than that in use here. This led to a visit to the establishment of Meprs. J. Morton Poole & Co. at Wilmington, Delaware, where the subject of grinding rolls, and rolling metals, was pretty thoroughly discussed by the firm, and Meprs. Webb and Garrett (Practical men in this Department who accompanied me) and myself. This visit occasioned the firm mentioned to look into our mode of manipulating Ingots, and they seemed impressed with the idea that we could arrange our rolls to produce strips, as surely accurate by gauge, as the Draw-Bench does.

About this time I accidentally saw a copy of the Report of the Deputy Master of the Royal Mint, London, for 1894, and noticed that the Superintendent of the Operative Department, the R.A. Hill, stated his experiments to do away with the Draw-Bench, and to dispense with the annealing of strips, had proven so far successful, that for the greater part of that year he had not used the one, nor annealed the strips.

On the 4th of April I wrote him, asking an explanation of his mode of manipulating the strips from the rolls, without annealing, and also what process he employed to avoid whitening or blanching the blanks. To this I received a lengthy reply dated June 1st giving a full explanation of his manner of working, illustrated with diagrams. I set about experimenting on this information, and found that we can reduce our Ingots to the required thickness, without annealing the strips, then by placing the planchets in either Copper cannisters or iron pans, (the latter preferred) rendered perfectly air tight with clay, we can anneal them without discoloration. I have now coin (quarter Dollars) in my possession treated in this manner, that are in every respect as good coin as any made in the usual way. The result of all these experiments however, only convinced me that the main improvements to make would be, the perfection of our rolls to such a degree as to do away with the Draw-Bench.

I may say just here that in this effort at improvement the practical men of the Department were freely consulted. Meprs. James, Garrett, Downing and Webb have been aiding at all times

in this matter, particularly has Mr. James devoted much thought and attention to this subject. Following up the conclusion reached, i.e. that the rolls must be perfected before the Draw-Bench could be dispensed with, Mr. James became satisfied that the principle of the small cylindrical Draw-Bench dies could be applied to a set of rolls. For some months past we have been allowing the cylindrical dies in the Draw-Bench to revolve, instead of remaining stationary, as had been the practice, so far as I know, since the introduction of the machine. By doing this we have been enabled to use a pair of these dies 12 weeks, whereas when they remained stationary a single day would use them up. Now then, in furtherance of applying this principal to set of rolls, Mr. James made some drawings of machine, that could be accurately adjusted and so arranged as to produce, it is confidently believed, a strip of Silver positively the same thickness from one end of it to the other.

By carefully examining Meprs. J. Morton Poole & Co.'s system of grinding rolls, Mr. James felt assured that two cylinders, or rolls, could be made of such a uniform diameter and parallelism, as to present to each other perfectly straight lines of an equal distance apart at all points. Then he felt if he could perfect a machine that would enable these rolls to be kept at an even temperature throughout, he would obtain the object sought. These matters were constantly discussed between Mr. James and myself, and resulted in his preparing, as stated, series of drawings, which, with my consent, he submitted to Meprs. J. Morton Poole & Co. for their advice and suggestion. These gentlemen were favorably struck with the plan, and Mr. James idea of keeping the rolls at an even temperature was pronounced feasible. They desired time to look into the whole plan. This resulted in the preparation by them of the accompanying drawings description, specifications and estimate of cost.

I have the honor, also, to transmit herewith a ground plan of the Rolling Room showing the position and space occupied by the several machines therein. The space that the proposed machine would occupy is also shown by the red lines between Rolls No. 2 and 3. Upon consulting this plan you will find that by doing away with the pointing rolls, wax box, and Draw-Bench there would be an area of 125 square feet gained.

The introduction of an improvement such as is contemplated would I feel convinced, do away with the annealing of strips. The Ingots from the breakdown rolls passing on through to the proposed new machine, or finishing rolls, without toughening. The pointing, waxing and greasing of strips would be dispensed with – a saving per annum of \$75 for wax and \$500 for Tallow.

I believe the Machine presented should be ordered. The cost is very reasonable – as great care must be taken to have it accurate in construction. Its adjustment is so delicate that the space between the rolls can be made less than the ten one-thousandth part of an inch. It is confidently believed that one of these new machines will do the work of our two Draw-Benches. If this belief is realized you can readily see the very great saving in expense by referring to the cost of the last Double-Bench, the bill for which was paid June 28th, 1873.

Meprs. J. Morton Poole & Co. do not say positively that the contemplated machine will do all the work claimed for it. They believe, with the practical men of this Department, judging from their general knowledge of Machinery, that it will produce more satisfactory results than

the Draw-Bench. I deem the matter of sufficient importance to warmly recommend that authority be granted to them to build a machine for this department.

I may add in conclusion that I believe it is practicable to dispense with the pickling of planchets, the source of the greatest loss in this Department. Treating the strips as stated, will leave the planchets with a fine polished surface – these placed in closed boxes and annealed, will prevent discoloration. The coin thus produced will present a nicely polished 9/10^o fine silver surface, instead of the present fine silver surface – will be in color what it is in fineness, and not as now, presenting a pure silver appearance, when in reality 1/10^o of it is base.

I have in my possession, as before stated a lot of Quarter Dollars treated in this way, that were submitted to you, and also examined by the other officials of this Mint – all agreeing that in appearance they are equally as elegant as our usual coinage, except in the matter of color – and this was believed to be an improvement over the dead white pure silver surface of our coin. The tint is the same as the present silver coinage of the Royal Mint at London, and indeed I am indebted to the Hon. Mr. Hill of that Mint for the mode of treatment.

Very Respectfully,
Your Obt. Servant
Signed O.C. Bosbyshell
Coiner